AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for use in a radio communications system, comprising:

for a signal connection between a mobile radio and a base station transceiver in a radio network, assigning a first training sequence for a first unit of information associated with the signal to be transmitted during a first time slot over the connection; and

assigning a second training sequence for a second unit of information associated with the signal to be transmitted during a second time slot over the connection between the mobile radio and the base station transceiver,

wherein different training sequences are assigned for different units of information associated with the signal to be transmitted during different time slots over the connection between the mobile radio and the base station transceiver to provide training sequence hopping for the signal transmission.

2. (Previously Presented) The method in claim 1, wherein the different training sequences are assigned for consecutive units of information in the signal to be transmitted over the connection .

3. (Previously Presented) The method in claim 1, wherein the assignment of training sequences to the different units of information in the signal to be transmitted over the connection follows a cyclic pattern.

4. (Previously Presented) The method in claim 1, wherein the assignment of training sequences to the different units of information in the signal to be transmitted over the connection follows a pseudo-random pattern.

5. (Original) The method in claim 1, wherein the first and second training sequences are members of a training sequence set, where each member has a favorable auto-correlation with other members in the set.

6. (Previously Presented) The method in claim 1, further comprising:

transmitting the first training sequence over the connection from the base station transceiver to the mobile station along with the first unit of information, and

the mobile station using the first training sequence in detecting the transmitted first unit.

7. (Previously Presented) The method in claim 6, wherein the radio network provides the base station and the mobile station with a training sequence indicator, and wherein the base station uses the training sequence indicator to transmit the first training sequence and the mobile station uses the training sequence indicator to provide the first training sequence in detecting the transmitted first unit.

8. (Currently Amended) The method in claim 1, further comprising:

transmitting the first training sequence as part of the signal transmission over the connection from the mobile station to the base station transceiver along with the first unit of information, and

the base station using the first training sequence in detecting the transmitted first unit.

9. (Original) The method in claim 1, wherein the radio communications system is a cellular network where transmissions from different cells are synchronized.

10. (Currently Amended) A method for use in a time division multiple access (TDMA) cellular radio communications network comprising:

changing a training sequence in a signal during transmission of the signal over a time slotted connection between a base station transceiver in the network and a mobile radio;

assigning a training sequence hopping pattern to the signal transmission over the connection between the base station transceiver and the mobile radio; and

using the training sequence hopping pattern to generate different training sequences in the signal for different time slots of the transmission of the signal over the connection between the base station transceiver and the mobile radio.

11. (Currently Amended) The method in claim 10, wherein the TDMA cellular radio communications network further employs ~~time division multiple access (TDMA) and~~ frequency hopping.

12. (Canceled).

13. (Currently Amended) The method in claim ~~12~~10, wherein the training sequence hopping pattern is stored in a look-up table.

14. (Currently Amended) The method in claim ~~12~~10, wherein the training sequence hopping pattern is generated using one or more training sequence parameters.

15. (Original) The method in claim 14, wherein the one or more training sequence parameters include one or more of the following: a frame number, a seed, and a number of training sequences.

16. (Previously Presented) The method in claim 12, further comprising generating an offset training sequence hopping pattern from the training sequence hopping pattern assigned to the signal.

17. (Currently Amended) The method in claim 10, further comprising selecting one of a set of training sequences to use during a first time ~~interval~~ slot of the signal transmission and providing an indicator of the one training sequence to the base station and to the mobile station.

18. (Currently Amended) The method in claim 17, further comprising selecting a second of the set of training sequences to use during a second time ~~interval~~ slot of the signal transmission and providing an indicator of the second training sequence to the base station and to the mobile station.

19. (Currently Amended) A radio communications system comprising:

one or more base stations each including at least one base station transceiver;

a mobile radio configured to communicate with one of the base station transceivers over a radio interface; and

a radio network node configured to establish a time-divided signal connection between the base station transceiver and the mobile station ~~by allocating necessary radio resources~~ so that different portions of data are transmitted during different time slots of the signal transmission over the connection, the radio network node~~and~~ including a training sequence controller configured to change a training sequence used during a signal transmission over the connection between the base station transceiver and the mobile station such that a first training sequence is used during a first time slot of the signal transmission over the connection and a second training sequence is used during a second time slot of the signal transmission over the connection.

20. (Currently Amended) The system in claim 19, wherein the training sequence controller includes a training sequence hopping pattern generator configured to generate a training sequence hopping pattern for the signal, wherein the pattern indicates how the training sequence is to be changed during the signal transmission over the connection.

21. (Original) The system in claim 19, wherein the radio network node is configured to provide the training sequence hopping pattern to the base station and to the mobile station.

22. (Previously Presented) The system in claim 21, wherein the radio network node is configured to provide the training sequence hopping pattern to the base station and to the mobile station along with information pertaining to radio resources allocated for the signal connection during a connection set up-procedure.

23. (Previously Presented) The system in claim 22, wherein the radio network node is configured to provide the training sequence hopping pattern to a new base station transceiver in conjunction with a handover of the connection to the new base station transceiver.

24. (Original) The system in claim 19, wherein the system is a GSM type cellular radio system and the radio network node is either a base station controller or a mobile switching center.

25. (Currently Amended) A radio network node for use in a cellular communications network comprising:

a resource controller configured to determine resources to support a signal connection between a base station transceiver and a mobile station where different units of information associated with the signal to be transmitted over the connection are associated with different transmission time slots for the signal to be transmitted over the connection, and

a training sequence hopping controller configured to determine a training sequence hopping pattern for the signal transmission over the connection between the base station transceiver and the mobile station,

wherein the training sequence hopping pattern includes different training sequences to be used during the different transmission time slots for the signal transmission over the connection between the base station transceiver and the mobile station.

26. (Original) The radio network node in claim 25, wherein the training sequence hopping controller is configured to determine the training sequence hopping pattern using one or more parameters.

27. (Original) The radio network node in claim 26, wherein the one or more parameters include one or more of the following: a frame number, a seed, and a number of training sequences.

28. (Original) The radio network node in claim 27, wherein the training sequence hopping controller is configured to generate an offset training sequence hopping pattern.

29. (Original) The radio network node in claim 25, wherein the training sequence hopping controller is configured to generate a cyclic training sequence hopping pattern.

30. (Original) The radio network node in claim 25, wherein the training sequence hopping controller is configured to generate a pseudo-random training sequence hopping pattern.

31. (Previously Presented) The radio network node in claim 25, wherein the training sequence hopping controller is configured to provide an indication of the training sequence hopping pattern for the signal connection to the base station transceiver and the mobile station.

32. (Currently Amended) The radio network node in claim 31, wherein the resource controller is configured to assign radio channel resources to the signal connection during a connection set up procedure and the training sequence hopping controller is configured to provide an indication of the training sequence hopping pattern for the signal transmission over

the connection between the base station transceiver and the mobile station during the call set up procedure.

33. (Previously Presented) The radio network node in claim 31, wherein the indication includes a sequence of seeds corresponding to the training sequence hopping pattern for the signal transmission.

34. (Currently Amended) The radio network node in claim 31, wherein the indication includes a sequence of table lookup addresses corresponding to the training sequence hopping pattern for the signal transmission over the connection.

35. (Original) The radio network node in claim 31, wherein each training sequence pattern includes an associated identifier, and wherein the indication includes one of the training sequence hopping pattern identifiers.

36. (Currently Amended) The radio network node in claim 31, wherein the indication includes some portion or all of the training sequences in the order corresponding to the training sequence hopping pattern for signal transmission over the connection.

37. (Currently Amended) A training sequence generator for use in a radio node, comprising:

electronic circuitry configured to perform the following tasks:

provide a first training sequence corresponding to a first time ~~interval~~ slot in a signal transmission over a connection between a base station transceiver in a radio network and a mobile station, and

provide a second training sequence corresponding to a second time ~~interval~~ slot in the same signal transmission over a connection between the base station transceiver and the mobile station.

38. (Previously Presented) The training sequence generator in claim 37, wherein the first and second training sequences may be used to estimate a characteristic of a radio channel supporting the signal transmission.

39. (Previously Presented) The training sequence generator in claim 37, wherein the electronic circuitry is configured to process a first training sequence indicator for the first time interval in the signal transmission in order to generate the first training sequence and a second training sequence indicator for the second time interval in the signal transmission in order to generate the second training sequence.

40. (Original) The training sequence generator in claim 39, wherein the electronic circuitry includes a look-up table for storing the first and second training sequences, and wherein the electronic circuitry is configured to access the first and second training sequences using the first and second indicators, respectively.

41. (Original) The training sequence generator in claim 37, wherein the electronic circuitry is configured to generate information for the first and second training sequences using first and second seeds, respectively.

42. (Previously Presented) The training sequence generator in claim 37, wherein the electronic circuitry is configured to generate information for the first and second training sequences using a frame number and a number of training sequences in a training sequence pattern assigned to the signal transmission, respectively.

43. (Previously Presented) The training sequence generator in claim 37, wherein the electronic circuitry is configured to generate information for the first and second training sequences using an offset from a training sequence pattern assigned to the signal transmission.

44. (Original) The training sequence generator in claim 37, wherein the first and second training sequences are members of a training sequence set, where each member has a favorable auto-correlation with other members in the set.

45. (Original) The training sequence generator in claim 37, wherein the electronic circuitry is configured to generate information for the first and second training sequences cyclically.

46. (Original) The training sequence generator in claim 37, wherein the electronic circuitry is configured to generate information for the first and second training sequences pseudo-randomly.

47. (Original) The training sequence generator in claim 37, wherein the radio node is one of a base station controller, a base station, and a mobile station.

48. (Currently Amended) A mobile radio terminal configured to communicate with a cellular communications network, comprising:

processing and transceiving circuitry configured to communicate information with a base station transceiver in the cellular communications network over a radio-based signal transmission conveyed over a connection between the base station transceiver and the mobile radio terminal, and

a training sequence hopping controller configured to determine a training sequence hopping pattern for the signal transmission,

wherein the training sequence hopping pattern includes different training sequences to be used during different time slots of the signal transmission between the base station transceiver and the mobile station.

49. (Original) The radio network node in claim 48, wherein the training sequence hopping controller is configured to determine the training sequence hopping pattern using one or more patterns.

50. (Original) The radio network node in claim 49, wherein the one or more parameters include one or more of the following: a frame number, a seed, and a number of training sequences.

51. (Original) The radio network node in claim 50, wherein the training sequence hopping controller is configured to generate an offset training sequence hopping pattern.

52. (Original) The radio network node in claim 48, wherein the training sequence hopping controller is configured to generate a cyclic training sequence hopping pattern.

53. (Original) The radio network node in claim 48, wherein the training sequence hopping controller is configured to generate a pseudo-random training sequence hopping pattern.

54. (Previously Presented) The radio network node in claim 48, wherein the training sequence hopping controller is configured to provide an indication of the training sequence hopping pattern for the signal transmission to the base station and the mobile station.

55. (Original) The radio network node in claim 54, wherein the indication includes a sequence of seeds corresponding to the training sequence hopping pattern for the connection.

56. (Original) The radio network node in claim 54, wherein the indication includes a sequence of table lookup addresses corresponding to the training sequence hopping pattern for the connection.

57. (Original) The radio network node in claim 54, wherein each training sequence pattern includes an associated identifier, and wherein the indication includes one of the training sequence hopping pattern identifiers.

58. (Original) The radio network node in claim 54, wherein the indication includes some portion or all of the training sequences in the order corresponding to the training sequence hopping pattern for the connection.